CLAIMS

Therefore, having thus described the invention, at least the following is claimed:

1. A system for robust transmission delimiting, comprising:

a communication message including a preamble, the preamble including a plurality of bits representing communication link control information; and

an encoder configured to encode the preamble bits into a plurality of symbol indices, the symbol indices encoded at a lower bit per symbol rate relative to the maximum rate capable of being supported over a communication channel.

2. The system as defined in claim 1, further comprising a gain boost element configured to increase the energy of the first symbol index to reliably indicate the beginning of the communication message.

3. The system as defined in claim 2, wherein the energy of the first symbol index is increased by 3 dB.

4. The system as defined in claim 1, wherein the preamble includes information that defines a rate at which data following the preamble has been encoded for transmission.

5. The system as defined in claim 1, wherein the preamble includes information defining a maximum rate at which a transceiver that is sending the preamble is able to receive transmissions from a transceiver that is receiving the preamble.

6. The system as defined in claim 1, wherein the preamble indicates whether a data portion follows the preamble and, if so, the format and type of data that follows the preamble.

7. The system as defined in claim 1, wherein the preamble indicates whether administrative information follows the preamble.

8. The system as defined in claim 6, further comprising:

a first scrambler configured to scramble the preamble; and

a second scrambler configured to scramble the data.

9. The system as defined in claim 8, in which a state of the scrambler used to scramble the bits that comprise the preamble is the state that existed when scrambling of a previous preamble was completed.

10. The system as defined in claim 6, wherein the data portion of the communication message comprises fixed size units, the fixed size units comprising a plurality of bits and

wherein the bits are encoded into symbol indices such that, for each of the fixed size units, one symbol index is encoded differently from the other symbols.

11. The system as defined in claim 10, wherein the differently encoded symbol index further comprises an extra bit that indicates whether the fixed size unit from which the other bits of the differently encoded symbol indices are obtained is the last one transmitted in a message.

12. The system as defined in claim 10, wherein the differently encoded symbol index is encoded at a data rate lower than that of the other symbols carrying message data.

13. A system for delimiting the end of a transmission, comprising:

a communication message segmented into a plurality of fixed size units, each fixed size unit including a plurality of bits; and

an encoder configured to encode the plurality of bits into a plurality of symbol indices at a first data rate, the encoder also configured to encode the first symbol index containing only bits from each fixed size unit at a data rate lower than that of the first data rate.

14. A method for robust transmission delimiting, the method comprising the steps of:

applying a preamble to a communication message, the preamble including a plurality of bits representing communication link control information; and

encoding the preamble bits into a plurality of symbol indices, the symbol indices encoded at a lower bit per symbol rate relative to the maximum rate capable of being transmitted over a communication channel.

15. The method as defined in claim 14, further comprising the step of increasing the energy of the first symbol index to reliably indicate the beginning of the communication message.

16. The method as defined in claim 14, further comprising the step of increasing the energy of the first symbol index by 3 dB.

17. The method as defined in claim 14, further comprising the step of including information in the preamble defining a rate at which data following the preamble has been encoded for transmission.

18. The method as defined in claim 14, further comprising the step of including information in the preamble defining a maximum rate at which a transceiver that is sending the preamble is able to receive transmissions from a transceiver that is receiving the preamble.

19. The method as defined in claim 14, further comprising the step of using the preamble to indicate whether a data portion follows the preamble and, if so, the format and type of data that follows the preamble.

20. The method as defined in claim 14, further comprising the step of using the preamble to indicate whether administrative information follows the preamble.

21. The method as defined in claim 19, further comprising the steps of:

scrambling the preamble using a first scrambler; and

scrambling the data using a second scrambler.

22. The method as defined in claim 21, further comprising the step of scrambling the bits in the preamble using the state of the scrambler that existed when scrambling of the previous preamble was complete.

23. The method as defined in claim 19, wherein the data portion of the communication message comprises fixed size units, the fixed size units comprising a plurality of bits ; and

wherein the bits that comprise each of the fixed size units are encoded into symbol indices such that for each of the fixed size units, one symbol index is encoded differently from the other symbols.

24. The method as defined in claim 23, further comprising the step of including in said differently encoded symbol index an extra bit that indicates whether the fixed size unit from which the other bits of said differently encoded symbol indices are obtained is the last one transmitted in a message.

25. The method as defined in claim 23, further comprising the step of encoding the differently encoded symbol index at a data rate lower than that of the other symbols carrying message data.

26. A method for delimiting the end of a transmission, the method comprising the steps of:

segmenting a communication message into a plurality of fixed size units, each unit including a plurality of bits;

encoding a plurality of the bits in the cells into a plurality of symbol indices, the symbol indices being encoded at a first rate; and

encoding the first symbol index containing only bits from each fixed size unit at a rate lower than that of the first rate.

27. A system for robust transmission delimiting, comprising:

means for applying a preamble to a communication message, the preamble including a plurality of bits representing communication link control information; and

means for encoding the preamble bits into a plurality of symbol indices, the symbol indices encoded at a lower bit per symbol rate relative to the maximum rate capable of being transmitted over a communication channel.

28. The system as defined in claim 27, further comprising means for increasing the energy of the first symbol index to reliably indicate the beginning of the communication message.

29. The system as defined in claim 27, further comprising means for increasing the energy of the first symbol index by 3 dB.

30. The system as defined in claim 27, further comprising means for including information in the preamble defining a rate at which data following the preamble has been encoded for transmission.

31. The system as defined in claim 27, further comprising means for including information in the preamble defining a maximum rate at which a transceiver that is sending the preamble is able to receive transmissions from a transceiver that is receiving the preamble.

32. The system as defined in claim 27, further comprising means for using the preamble to indicate whether a data portion follows the preamble and, if so, the format and type of data that follows the preamble.

33. The system as defined in claim 27, further comprising means for using the preamble to indicate whether administrative information follows the preamble.

34. The system as defined in claim 32, further comprising:

means for scrambling the preamble using a first scrambler; and

means for scrambling the data using a second scrambler.

35. The system as defined in claim 34, further comprising means for scrambling the bits in the preamble using the state of the scrambler that existed when scrambling of the previous preamble was complete.

36. The system as defined in claim 32, wherein the data portion of the communication message comprises fixed size units, the fixed size units comprising a plurality of bits; and

means for encoding the bits that comprise each of the fixed size units into symbol indices such that for each of the fixed size units, one symbol index is encoded differently from the other symbols.

37. The system as defined in claim 36, further comprising means for including in said differently encoded symbol index an extra bit that indicates whether the fixed size unit from which the other bits of said differently encoded symbol indices are obtained is the last one transmitted in a message.

38. The system as defined in claim 36, further comprising means for encoding the differently encoded symbol index at a data rate lower than that of the other symbols carrying message data.

39. A system for delimiting the end of a transmission, comprising:

means for segmenting a communication message into a plurality of fixed size units, each unit including a plurality of bits;

means for encoding a plurality of the bits in the cells into a plurality of symbol indices, the symbol indices being encoded at a first rate; and

means for encoding the first symbol index containing only bits from each fixed size unit at a rate lower than that of the first rate.

40. A computer readable medium having a program for robust transmission delimiting, the program comprising logic for performing the steps of:

applying a preamble to a communication message, the preamble including a plurality of bits representing communication link control information; and

encoding the preamble bits into a plurality of symbol indices, the symbol indices encoded at a lower bit per symbol rate relative to the maximum rate capable of being transmitted over a communication channel.

41. The program as defined in claim 40, further comprising logic for performing the step of increasing the energy of the first symbol index to reliably indicate the beginning of the communication message.

42. The program as defined in claim 40, further comprising logic for performing the step of increasing the energy of the first symbol index by 3 dB.

43. The program as defined in claim 40, further comprising logic for performing the step of including information in the preamble defining a rate at which data following the preamble has been encoded for transmission.

44. The program as defined in claim 40, further comprising logic for performing the step of including information in the preamble defining a maximum rate at which a transceiver that is sending the preamble is able to receive transmissions from a transceiver that is receiving the preamble.

45. The program as defined in claim 40, further comprising logic for performing the step of using the preamble to indicate whether a data portion follows the preamble and, if so, the format and type of data that follows the preamble.

46. The program as defined in claim 40, further comprising logic for performing the step of using the preamble to indicate whether administrative information follows the preamble.

47. The program as defined in claim 45, further comprising logic for performing the steps of:

scrambling the preamble using a first scrambler; and

scrambling the data using a second scrambler.

48. The program as defined in claim 47, further comprising logic for performing the step of scrambling the bits in the preamble using the state of the scrambler that existed when scrambling of the previous preamble was complete.

49. The program as defined in claim 45, wherein the data portion of the communication message comprises fixed size units, the fixed size units comprising a plurality of bits; and

wherein the bits that comprise each of the fixed size units are encoded into symbol indices such that for each of the fixed size units, one symbol index is encoded differently from the other symbols.

50. The program as defined in claim 49, further comprising logic for performing the step of including in said differently encoded symbol index an extra bit that indicates whether the fixed size unit from which the other bits of said differently encoded symbol indices are obtained is the last one transmitted in a message.

51. The program as defined in claim 49, further comprising logic for performing the step of encoding the differently encoded symbol index at a data rate lower than that of the other symbols carrying message data.

52. A computer readable medium having a program for delimiting the end of a transmission, the program comprising logic to perform the steps of:

segmenting a communication message into a plurality of fixed size units, each unit including a plurality of bits;

encoding a plurality of the bits in the cells into a plurality of symbol indices, the symbol indices being encoded at a first rate; and

encoding the first symbol index containing only bits from each fixed size unit at a rate lower than that of the first rate.